

a1 for super-fine patterns of which the size is 0.13 μm or smaller in the manufacture of very large scale integration(VLSI). Accordingly, the radiations used as a conventional exposure source, such as g- or i-ray, have become replaced by those that have a shorter wavelength, and lithographic techniques using KrF or ArF excimer laser, X-ray or electron beam have lately attracted considerable attention. Especially, an ArF excimer laser is a most promising exposure source in the future lithography requiring a pattern size of 0.13 μm or smaller. --

On page 3, please replace the paragraph beginning at line 3 with the following:

-- It is therefore an object of the present invention to provide a polymer for use in a chemically amplified resist, which may be exposed to KrF or ArF excimer laser and have low dependence on
a2 and good adhesion to substrate, high transparency in the wavelength range of the above radiation, strong resistance to dry etching, and excellencies in sensitivity, resolution and developability. --

On page 8, please replace the paragraph beginning at line 9 with the following:

-- To obtain a uniform and flat photoresist coating, the resist composition of the present invention has to be dissolved in a solvent that shows an appropriate evaporation rate and viscosity. Examples of such a solvent may include ethyleneglycol monomethyl ether,
a3 ethyleneglycol monoethyl ether, ethyleneglycol monopropyl ether, methylcellosolve acetate, ethylcellosolve acetate, propyleneglycol monomethyl ether acetate, propyleneglycol monoethyl ether acetate, propyleneglycol monopropyl ether acetate, methyl isopropyl ketone, cyclohexanone, methyl 2-hydroxypropionate, ethyl 2-hydroxypropionate, 2-heptanone, ethyl lactate, and γ -butyrolactone. If necessary, they may be used alone or in combinations of at least two species. --

On page 9, please replace the paragraph beginning at line 2 with the following:

a4 Then, selective irradiation is performed on the coated photoresist film to give fine patterns. The radiation as used herein may include, if not specifically limited to, i-ray, KrF or ArF excimer laser, X-rays, or charged particle rays (e.g., electron beam), which can be selected depending on the type of the photoacid generator employed.

On page 9, replace the paragraph beginning at line 18 with the following:

as -- To a 500ml flask were added 60g of methylnorbornanemethoxymethyl methacrylate, 56g of isobornyl methacrylate, 10g of AIBN and 232g of dioxane. Nitrogen gas was introduced into the reactor to replace oxygen in the reactor with nitrogen and the reactor was then heated to 70 °C with stirring for 2 hours. The reaction mixture was kept for 2 hours and the reactor was cooled to the room temperature. Subsequently, the polymer product was precipitated in an excess of methanol. The precipitate thus formed was filtered, washed and dried to yield a polymer represented by the following formula 4. --

On page 10, please replace the paragraph beginning at line 6 with the following:

a6 -- The procedures were performed in the same manner as described in synthesis example 1, except for using 60g of methylnorbornanemethoxymethyl methacrylate, 45g of isobornyl methacrylate, 16g of hydroxyethyl methacrylate, 11g of AIBN and 222g of dioxane to yield a polymer represented by the following formula 5. --

On page 10, please replace the paragraph beginning at line 14 with the following:

a7 -- The procedures were performed in the same manner as described in synthesis example 1, except for using 60g of methylnorbornanemethoxymethyl methacrylate, 45g of isobornyl methacrylate, 15g of cyclohexyl vinyl ether, 10g of AIBN and 240g of dioxane to yield a polymer represented by the following formula 6. --

On page 11 please replace the paragraph beginning at line 5 with the following:

a8 -- The procedures were performed in the same manner as described in synthesis example 1, except for using 36g of methylnorbornanemethoxymethyl methacrylate, 45g of isobornyl methacrylate, 23g of methyladamantyl methacrylate, 5g of methacrylic acid, 10g of AIBN and 228g of dioxane to yield a polymer represented by the following formula 7. --

On page 11, please replace the paragraph beginning at line 14 with the following:

a9 -- The procedures were performed in the same manner as described in synthesis example 1, except for using 36g of methylnorbornanemethoxymethyl methacrylate, 45g of isobornyl methacrylate, 86g of norbornene, 5g of methacrylic acid, 10g of AIBN and 228g of dioxane to yield a polymer represented by the following formula 8. --

On page 13, please replace the paragraph beginning at line 23 with the following:

a10 As described above, the present invention provides a novel polymer comprising an alkoxyalkyl acrylate monomer and an acrylate monomer having an alicyclic group, and a novel resist composition comprising the novel polymer and a photoacid generator to allow formation of a photoresist pattern, which may be exposed to KrF or ArF excimer laser and show reduced edge roughness, low dependency on and good adhesion to substrate, high transparency in the wavelength range of the ultraviolet region, high resistance to dry etching, and excellencies in sensitivity, resolution and developability.

IN THE ABSTRACT:

Please replace the abstract with the following: